

Linear Interpolation

Figure 1 shows the relationship between the two rates and days to maturity. Linear interpolation assumes that the unknown rate (R_n) lies on the line (AC) between the two known rates. Because AC is linear, that is, a straight line, the slope of the line (AB) connecting R_1 and R_n is the same as the slope of line AC. Using the “rise over run” formula for the slope of the line, we solve for R_n as follows:

$$\begin{aligned}
 R_n &= R_1 + \frac{R_2 - R_1}{t_2 - t_1} \times (t_n - t_1) \\
 &= 4.3313\% + \frac{4.3944\% - 4.3313\%}{64 - 35} \times (45 - 35) \\
 &= 4.3313\% + 0.00218\% \times (10) = 4.3530\%
 \end{aligned}$$

The interpolated rate is 4.3530%, which lies between the two known rates.

Figure 1: Linear interpolation

